National Institute of Environmental Health Sciences

Global climate change: Impact of diurnal temperature range on mortality in Guangzhou, China

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Abstract:

Diurnal temperature range (DTR) is an important meteorological indicator associated with global climate change, but little is known about the effects of DTR on mortality. We examined the effects of DTR on cause-/age-/education-specific mortality in Guangzhou, a subtropical city in China during 2003-2010. A quasi-Poisson regression model combined with distributed lag non-linear model was used to examine the effects of DTR, after controlling for daily mean temperature, air pollutants, season and day of the week. A 1 degrees C increase in DTR at lag 0-4 days was associated with a 0.47% (95% confidence interval: 0.01%-0.93%) increase in non-accidental mortality. Stroke mortality was most sensitive to DTR. Female, the elderly and those with low education were more susceptible to DTR than male, the youth and those with high education, respectively. Our findings suggest that vulnerable subpopulations should pay more attention to protect themselves from unstable daily weather.

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Resource Description

Early Warning System: ☑

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure : ☑

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Fluctuations

Geographic Feature: ☑

resource focuses on specific type of geography

Other Geographical Feature

Other Geographical Feature : Subtropical

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: China

Health Impact:

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Injury

Cardiovascular Effect: Stroke

Intervention:

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Elderly, Low Socioeconomic Status

Other Vulnerable Population: Female

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content